

tech talk

By Marlan Davis

Getting Out Of A Bind

In the August '95 Tech Talk column, Fred Metzler Jr. wrote a letter describing excessively rapid brake-pad wear on his '93 Typhoon. Your response indicated that you also experienced similar wear on your '91 Syclone. Let me describe what I found to be the cause of my problem and what I did to fix it.

My symptoms were excessive brake dust on the front wheels and poor braking efficiency. Inspection of the rear drum brake shoes showed slight, normal wear. Inspection of the front pads, however,

Heat generated during braking was causing each caliper to expand and bind in its steering-knuckle mounting. During braking, hydraulic pressure overcame the friction, and the pads moved against the rotor. However, upon release of brake pressure, only the caliper piston and inner pad would retract. The caliper remained stuck in its mounting, holding the outer pad firmly against the rotor, wearing the outer pad and continuing to generate heat, which continued to bind the caliper in its mounting.

The fix was to disassemble the calipers from their mountings and to hand file (using a mill file) the steering knuckle to provide the proper clearance. Since this is a "cut and try" operation, it should be done in several small, careful steps. It's easy to remove too much material and wind up with brake calipers that "clunk" with each brake application.

Following the replacement of all worn parts with GM service parts, I have had much improved braking and only normal wear for the past 30,000 miles (about half pad depth). Yes, these brakes are relatively small for the application, but they have proven adequate for my 65,000 miles worth of daily street driving. You just have to remember their limitations.

JOHN R. BELL
Marysville, WA

Thanks for the advice. Readers, this problem can occur on any late GM chassis running Moraine floating calipers. The required caliper-knuckle clearance varies per year and chassis—check your service manual.

Pioneering Is Tough

I own a '91 Chevy Lumina Z34 with the 3.4-liter V6 DOHC engine. This engine stock should deliver approximately 200 horsepower with the automatic trans. I decided to try turbocharging the engine and took the car to a supposed expert in the field. He installed a Mitsubishi turbo, K&N air filter and Car Tech fuel-pressure gauge. (I don't know much more than that, sorry.)

I thought I'd end up with a decent 250- to 350-horse Z34. Instead, I now have an engine that runs hot and lacks performance at times, and the "Service En-

gine" light comes on regularly. This expert says there's nothing wrong with the turbo and that there is something wrong with the engine. I'm willing to believe that as well since I now have a little ping-ing sound (oh boy, engine rebuild time) and a bit of an oil leak.

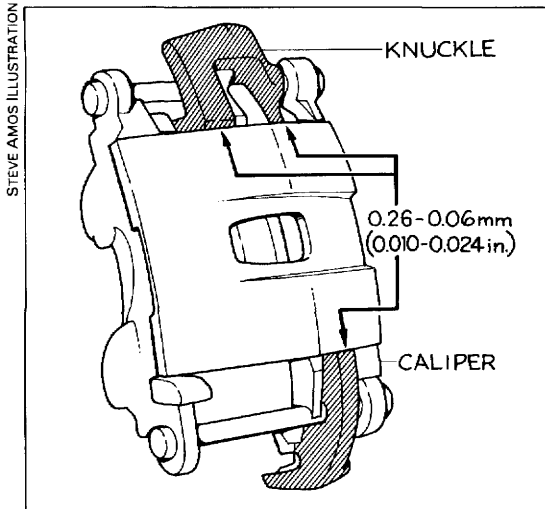
I'm at the point right now where I'm planning on rebuilding the engine (for strength). However, I'd love to get some feedback from anyone who is willing to give me some advice on what might be a good thing to do during the rebuild. I know that putting an intercooler on would be a great idea and, believe me, if I have the extra money, I'm going to. However, I need to know whether I should put smaller cams in to reduce the 9.25:1 compression ratio, get a higher-pressure oil pump, bore the cylinders over for some extra power (Or is that not a good idea because of the increased heat with the turbo?), O-ring the cylinder bores or add forged pistons. I'd really like to know where in the hell I can get this stuff, because I can't find a dealer anywhere that has performance parts for the 3.4 DOHC engine. Argh!

I'm really in a bind here—this car is my normal transportation. I'd appreciate any help you or your readers could give me in this time of need. Doesn't anyone make a custom ECM for this vehicle with a turbocharger? Doesn't anyone know about hopping-up the 4T60E GM trans?

SHAWN BASS
Naperville, IL

Basically, the 3.4's compression ratio is too high to maximize efficiency with a turbocharger. Lowering it requires custom pistons—camshafts open and close the valves, they don't affect the static compression ratio. A stock Buick Grand National turbo (AirResearch T3 series) is a good starting point, but you'll also need fuel augmentation, including bigger injectors and more fuel pump. I wouldn't even consider a serious turbo setup without an intercooler. The 3.4 DOHC V6 is a descendent of the weak 2.8-liter, 60-degree V6 and is not meant for serious performance use. The block, crank and rods are all weak.

Art Carr Performance Transmission Products (Dept. CC, 10575 Bechler River Ave., Fountain Valley, CA 92708, 714/962-6655) is planning an R&D program for the 4T60E in the near future. If you readers know of any other company



When checking brake-caliper-to-steering-knuckle clearance on GM S/T-truck chassis, measure clearance at each caliper individually, then add all together to arrive at the total.

showed that the outer pads had worn completely through the pad material and were rubbing the metal backing plates on the rotors, thereby destroying the rotors. (The audible wear indicators are affixed to the inner pads, thus I had no audible indication of the rapid wear problem.) Checking the service manual, I found that there should be between 0.010- and 0.024-inch total clearance between the ends of each caliper and the steering knuckle. (Use a feeler gauge, measure clearances at each end of the caliper and add the clearances together.) Both calipers measured well below the minimum tolerance.

Technical information by Marlan Davis. Reader inquiries are invited for this column. Unfortunately, letters cannot be answered personally. CAR CRAFT will publish as many letters, with Marlan's responses, as space permits. Mail letters to Tech Talk, CAR CRAFT, 6420 Wilshire Blvd., Los Angeles, CA 90048-5515.